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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,091	11/16/2001	Kelvin Kar-Kin Au	7000-107	9121

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EXAMINER

GAUTHIER, GERALD

ART UNIT	PAPER NUMBER
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2645

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/050,091

Applicant(s)

KAR-KIN AU ET AL.

Examiner

Gerald Gauthier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/16/01 and 3/31/.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claim(s) 1-33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Buehrer et al. (US 6,801,791 B2) in view of Hanson et al. (US 5,633,861) and in further view of An et al. (US 6,813,272 B1).

Regarding **claim(s) 1, 12 and 23**, Buehrer discloses an access point for scheduling delivery of units of data to a plurality of access terminals (column 1, lines 7-9) comprising:

a) a network interface for receiving data from a communication network (column 3, lines 28-43) [The base station 11 has a network interface in communication with a communications network];

b) a wireless interface for transmitting units of the data to a plurality of access terminals (column 3, lines 28-43) [The base station 11 has a wireless interface for transmitting signals to multiple mobile stations]; and

a control system having a plurality of queues corresponding to the plurality of access terminals (column 3, lines 28-43) [The modular 14 receiving signal to be transmitted to the plurality of mobile stations] and adapted to:

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i) store the data received over the communication network as units in the plurality of queues for the plurality of access terminals (column 3, lines 44-57) [The modular 14 stores signals received from the communication network with a plurality of terminals];

ii) determine a temporal fading factor based on a current channel condition relative to an average channel condition for each of the plurality of access terminals (column 3, lines 44-57) [The fading factor is determined depending on the path the signals will travel to the mobile station 12];

v) calculate a weighting factor based on the temporal fading factor, the throughput fairness factor, and the delay QoS factor for each of the plurality of access terminals (column 3, lines 44-57) [The modulator 11 estimates the weighing factor for each signal to be transmitted to reduce a bit error rate]; and

vi) select a unit for transmission via the wireless interface from one of the plurality of queues based on the weighting factor (column 3, line 65 to column 4, line 12) [The base station 11 select the mobile station 12 based on the weighing factor and fading factors associated with the transmitting signals].

Buehrer discloses the wireless system transmitting data signal to multiple mobile station based on the fading factor and the weighing factor but fails to disclose determine a throughput fairness factor.

However, Hanson teaches determine a throughput fairness factor based on throughput capability for each of the plurality of access terminals (column 8, lines 48-61)

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[The fairness factor is determined based on the performance of the network for specific traffic of data].

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify Buehrer using the throughput fairness factor as taught by Hanson.

This modification of the invention would allow the determination of the throughput fairness factor so that the system would route the data based on the path signal.

Buehrer discloses the wireless system transmitting data signal to multiple mobile station based on the fading factor and the weighing factor but fails to disclose determine a delay Quality of Service (QoS) factor.

However, An teaches determine a delay Quality of Service (QoS) factor based on delivery times associated with at least one unit for each of the plurality of access terminals (column 9, lines 11-17) [The current total QoS value is determined to be optimum than the previous value a correction of routing information delivering data is made based on the path].

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify Buehrer using the Quality of Service (QoS) factor as taught by An.

This modification of the invention would allows the determination of the delay Quality of Service (QoS) factor so that the system would achieve a fast routing of the data.

Regarding **claim(s) 2, 13 and 24**, Buehrer discloses the control system is further adapted to:

- a) determine the average channel condition over a period (column 4, lines 46-52);
- b) determine the current channel condition (column 4, lines 46-52); and
- c) calculate a ratio of the current channel condition to the average channel condition to determine the temporal fading factor (column 4, lines 1-12).

Regarding **claim(s) 3, 14 and 25**, Buehrer discloses the current and average channel conditions are derived from carrier-to-interference ratios (column 4, lines 59-67).

Regarding **claim(s) 4, 15 and 26**, Hanson teaches the throughput fairness factor is calculated in a manner deemed to achieve a select level of fairness between access terminals having better channel conditions and access terminals having worse channel conditions (column 8, lines 62-67).

Regarding **claim(s) 5, 16 and 27**, Hanson teaches the throughput fairness factor is a function of the average channel condition (column 8, lines 62-67).

Regarding **claim(s) 6, 17 and 28**, Hanson teaches the throughput fairness factor is a function of an average throughput rate (column 8, lines 62-67).

Regarding **claim(s) 7, 18 and 29**, Hanson teaches the throughput fairness factor is a further function of the average channel condition (column 8, lines 62-67).

Regarding **claim(s) 8, 19 and 30**, An teaches the delay QoS factor for each access terminal is a function of the deliver times for a plurality of the units in each queue including the next unit to transmit in each queue (column 9, lines 22-33).

Regarding **claim(s) 9, 20 and 31**, An teaches the delay QoS factor for each access terminal is a function of an amount of data to be transmitted (column 9, lines 22-33).

Regarding **claim(s) 10, 21 and 32**, Buehrer discloses the control system is further adapted to:

- a) calculate a weight inversely proportional to the delivery time for a plurality of the units in each of the plurality of queues (column 4, lines 20-26); and
- b) calculate the delay QoS factors for each access terminal by summing the weights for the plurality of units in each of the plurality of queues (column 3, lines 44-57).

Regarding **claim(s) 11, 22 and 33**, Buehrer discloses the control system is further configured to assign a defined weight for units having a delivery time greater than a defined threshold (column 4, lines 59-67).

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Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Savchenko et al. is cited for a seamless multimedia branching (FIG. 1).

Cotter is cited for transmitting a return signal in a loop network (FIG. 1).


4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gerald Gauthier whose telephone number is (703) 305-0981. The examiner can normally be reached on 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (703) 305-4895. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GERALD GAUTHIER
PATENT EXAMINER

g.g.
December 27, 2004


JACK CHIANG
PRIMARY EXAMINER